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Wildlife

IN NORTH CAROLINA

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OCTOBER 1949

Wild Geese over Lake Mattamuskeet Observation Tower

A POETIC PORTRAIT by Jack Dermid

He who, from zone to zone
Guides through the boundless sky thy certain flight
In the long way that I must tread alone,
Will lead my steps aright.

From "To A Waterfowl" By William Cullen Bryant

Wildlife IN NORTH CAROLINA

The Official Publication of The North Carolina Wildlife Resources Commission, Raleigh

A monthly magazine devoted to the protection and restoration of our Wildlife Resources and to the improvement of hunting and fishing in North Carolina

STATE OF NORTH CAROLINA

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Governor

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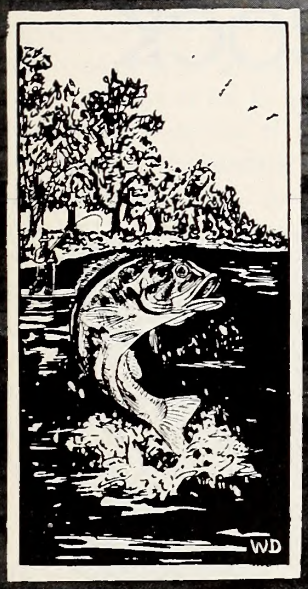

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★ ★ ★

COVER

The black bear, one of Win Donat's favorite wildlife subjects, appears on this month's cover. Win used the "scratchboard" technique to produce this photographic likeness.

Wildlife in North Carolina recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication all news items, articles, photographs, and other material dealing with the various activities which combine to make North Carolina a better state for hunting and fishing. Full credit is given for all material published.

★ ★ ★

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★ ★ ★

It's an ill wind that blows no good. In our August issue an errata slip was necessary to correct an error in listing the commissioners on page three. We used the opposite end of the slip to solicit subscriptions, and they poured in by the hundreds. We are grateful to those who helped us out of a hole by subscribing to *Wildlife,* by renewals, gifts, or new subscriptions.

ROD AMUNDSON, *Editor*

LET'S LEARN ABOUT OUR WILDLIFE

The Ninth of a Series on Game Birds and Game Mammals of North Carolina

THE AMERICAN WOODCOCK

By ROD AMUNDSON

Photos Courtesy U. S. Fish and Wildlife Service

Protective coloring makes nesting woodcocks almost impossible to see—but easy to photograph.

IF the imposing list of common names assigned to *Philohela minor* were an indication of knowledge concerning the species, the American woodcock would be one of the best-known of game birds. Despite at least thirty locally accepted appelations, the woodcock is one of the least known and understood game birds in America. With a rather small segment of American sportsmen, including Tarheel nimrods, it is one of the most popular.

Among the common names given to the woodcock are: Bar-Capped Snipe, Big-Eyes, Big-Eyed John, Big-Headed Snipe, Bogsucker, Hill Partridge, Timberdoodle, Swamp Partridge, Woodhen, Wall-Eyed Snipe, Wood Snipe, Bog Snipe and Blind Snipe. The regularity with which the word "snipe" is used in the common names of the woodcock attests to its resemblance and relationship to the group of shorebirds generally called snipes. Translated into English vernacular, the scientific name *Philohela minor* means "little swamp-lover." Nevertheless, its liking for upland woodlands and sunny hillsides has caused the woodcock to be considered an upland game bird, in the same loose classification as quail, grouse, and wild turkeys.

HISTORY

It was not until late in the eighteenth century that woodcoks were recognized by law as game birds, and this recognition was nothing more signifi-

cant than an ordinance which made the shooting of woodcock within the city of New York illegal. Like so many other game species, the woodcock was abundant throughout its range in the nineteenth century, and suffered the abuses of other game species. Daily kills of fifty to sixty birds were not uncommon during the early eighteen-hundreds, and because of the difficulty of obtaining significant kills during the migration periods, summer shooting was a common practice. Woodcocks commanded a market price of a dollar each, and dollar-hungry market hunters gave little if any thought to the future of the species—unless it was to worry about the exhaustion of a valuable source of income. Nothing like intelligent legal protection benefitted the woodcock until the passage of the Federal Migratory Bird Act in 1916. At present woodcocks appear to be increasing throughout most of their range. An indication of this increase is an open season on woodcocks in North Carolina during the 1949-1950 season for the first time in eleven years. Because the woodcock is a migratory bird, it is subject to regulation by federal law.

DESCRIPTION

The woodcock is seldom seen or recognized by other than sportsmen or naturalists, despite the fact that it averages several ounces heavier than the bobwhite quail, and the wingspread is correspondingly wider. Although the male bird is generally darker in color than the female, positive sex identification is possible only by internal examination.

The general aspect of the bird is a compact brown, black, and cinnamon ball with a big head, a long beak and scarcely any tail. The eyes are long and prominent, set high toward the crown of the head, just back of a forehead which slants out to the long bill. The tail is stubby, and hardly distinguishable from the meeting of the wings and tail coverts. The brown, black, and cinnamon-buff markings of the feathers blend the bird so closely to its favorite habitat among fallen and decaying leaves, that it is almost impossible to see a woodcock resting or nesting on the ground until it is startled to flight.

Biologists studying the woodcock in Maine found that in general females outweighted the males by several ounces, but that weight alone was far from an accurate means of differentiation between sexes. Being larger than males, females have longer bills, but here again variation among individuals makes rules of thumb little more than guesswork.

GENERAL CHARACTERISTICS

Because of his shy, secretative habits, the woodcock is one of the least understood of American birds. He is a creature of woodland shadows in the daytime, and is active only during the hours of dawn and dusk. During the day he rests on the ground in woodland thickets, almost completely indistinguishable from the carpet of dead leaves on which he rests. In the early morning and late evening hours he goes forth to feed, and only the cautious observer can ever watch him make his way over the ground in search of food.

The woodcock is not a gregarious bird in the sense that quail or Canada geese are, but he gets along very well with others of his kind and with other species. Many believe him to be quite tame, but such is hardly the case. Once flushed he will fly widly to escape, and continued interference with his daily routine will cause him to abandon his home area for more congenial quarters. The mistaken reputation for tameness undoubtedly comes from his blind faith in his protective coloration. Frequently he will "freeze" to a given spot in the belief that he is unobserved, and fail to fly until an enemy is dangerously near.

The range of the woodcock extends in general from Washington, and Canadian provinces to the north of that state, to California, Idaho, Montana, and eastward across northern Saskatchewan to New Brunswick, Maine, and down the Atlantic Seaboard states. Winter range extends as far south as Bermuda and Jamaica. The most important breeding areas are New Brunswick, Ontario, Maine, and Pennsylvania, although it is possible that woodcocks nest in every state east of the Mississippi. There are very few records of nesting in North Carolina, although a number of birds winter here. Its northward movement in general follows the disappearance of frozen ground, and its southern flight usually precedes fall frosts.

Since the woodcock is a night migrant, little is known of the migratory flight habits. In its wintering or breeding habitat, the flight of the woodcock has caused much argument among sportsmen. Some contend that the bird flushes vertically into the air until it rises above the treetops, then levels off to put as much distance as possible as quickly as possible between it and danger. Others know, however, that in open woodlands or where there is scanty forest growth, the woodcock will take off like a plane

Woodcock eggs are invariably four in number.

These eggs have been "pipped" and are ready to hatch . . .

from a landing strip and dart among scattered trees. Still others have seen a woodcock dash through heavy timber growth without rising more than a few feet from the ground, making a difficult and sporting target. Suffice it to say that the flight of the woodcock is swift, varied, and effective in eluding a pattern of bird shot.

Although woodcocks are year-around residents of North Carolina, their numbers are augmented during the fall and winter months when northern birds come down to spend the winter. They may be found in nearly every county of the state, but less in western counties in recent years than they were thirty years ago.

FOOD HABITS

There is nothing in the food habits of the woodcock which in any way puts him in competition with mankind. He is entirely a ground feeder and almost all of his food is taken from within the soil. The long, highly sensitive beak of the woodcock is an ideal probe with which he may obtain several hundreds of earthworms each day in addition to beetles, larvae, and other creatures which live in the woodland soil. Both the upper and lower parts of the beak are moveable and can be moved independently of each other. This undoubtedly facilitates the probing for unseen food. Holes left in soft mud where woodcocks have fed or sub-surface animal life have undoubtedly given rise to the common name "Bogsucker." Most of the feeding is done in wooded lowlands, along the muddy banks of creeks, or at the wooded edge of marshes, where rich soil provides plenty of worms.

Most recent studies of woodcock food habits indicate that earthworms comprise from 80 to 90 per cent of the diet, with small percentages of beetles and flies, and a few seeds probably taken unintentionally. Since direct observations of woodcock feeding habits are almost impossible, due to the nocturnal habits of the birds, food habits studies have been conducted almost entirely by stomach content analysis.

The need for soft, unfrozen soil in which to feed may have drastic effects on woodcock populations. Usually the birds migrate southward before the ground freezes, and do not return to their northern nesting grounds until the danger of frost is past. But woodcocks are not infallible weather forecasters, and late spring snowstorms and frosts as well as early fall cold has many times caused hundreds of thousands of woodcocks to die of starvation.

Long periods of drouth have had harmful effects on woodcock populations. The soil becomes so hard that the birds cannot penetrate it with their beaks, and if they could do so, soil organisms move beyond reach into the sub-soil. Many birds find emergency rations by probing into rotted logs for bark beetles, wood borers, and other larvae.

The facility with which woodcocks locate food underground has led many observers to believe that sensitive beaks and keen hearing enable them to

. . . into tiny balls of down with long bills attached.

detect the movement of soil organisms and find them unerringly.

BREEDING HABITS

The vocal accomplishments of the woodcock might have been discussed under "General Characteristics," but they are so closely related to the breeding season that it might be more interesting to consider them with the other mating phenomena. Although the woodcock may make vocal sounds throughout the year, he is most articulate during the nesting season. There are many observers who contend that the twittering whistle made by flushing birds is a vocal sound rather than the result of air being forced through the primary feathers. Others contend that the sound is mechanical, but no one seems to have successfully proved his point.

Male birds select the nesting site, and banded birds are known to return to the same place year after year. Nesting sites are selected with an eye to feeding cover, protection cover, and cleared areas which are used as singing grounds. Apparently the

cocks are jealous of their domain, for it is rare that nesting sites will be found nearer than 100 yards apart.

Once he has selected a location, the cock begins a period of singing and showing off to attract a mate. He struts about on the cleared area, making soft, whimpering sounds, punctuated every few seconds with a nasal *"peent."* This routine may go on for several minutes until the bird suddenly takes off in a vertical spiral ascent into the air accompanied by the usual twittering sound of a flushed bird. As the spirals of the flight increase the bird emits a series of clear, high-pitched calls. When a height of from 100 to 300 feet is reached, he then goes into a sudden twisting, turning dive as his song changes to a series of sharp *"chip"* notes. Having leveled off to a landing, the cock begins the entire process anew.

If the antics of the cock are successful in attracting a hen, she sits on the ground watching him, obviously in admiration. Then begins a routine of serious strutting and showing off on the part of the cock. He ruffles his feathers, fans his wings, and prances about like a courting pigeon. His call changes from the *"peent"* sound to a soft cooing note not unlike that of a dove.

Although woodcocks are considered by most observers to be monogamous, they may use several singing grounds, possibly to increase their chances of finding a mate.

Nests are invariably placed on the ground, usually near a stream, or in a swamp thicket. There is apparently little attempt on the part of the birds to conceal the nest, since many have been found in clearings surrounded by thickets. The birds so closely resemble the color of the fallen leaves and dead vegetation around the nest that it is almost impossible to see them unless one's eyes happen to spy the black beady eyes of the nesting bird. Nest materials are any vegetation which happens to lie about the ground near the nest.

The eggs are invariably four in number, and are similar in shape to those of other shorebirds, being large on one end and tapering toward the other. They are a light pinkish brown, with dark brown blotches and a blue-gray patch on the larger end. After from 20 to 21 days they hatch, having been brooded almost constantly except when the hen has gone foraging for food. Nesting woodcocks are a favorite subject of nature photographers, since they sit closely to the nest to allow close-up photos to be made. Some observers believe that the cock takes over the chore of incubation while the hen feeds, but there is little recorded evidence to support this contention.

The young birds are a pale yellow-buff, and covered with down. Except for their long beaks, they resemble newly hatched chickens, but are much smaller. The woodcock family leaves the nest as soon as all the eggs are hatched, and for several days the youngsters find warmth and protection under the mother's feathers. One of the mysteries surrounding woodcocks is whether the mother bird transports her young over considerable distance to find feeding grounds or safer quarters. This, and the manner in which the chicks are transported, is still a matter for factual proof.

If food is plentiful, and enemies do not take their toll, young woodcocks grow fast and can fly about two weeks after hatching. At the end of six months they are as big as their parents—often bigger. The family usually stays together until late summer or early autumn.

MANAGEMENT

Management of woodcocks is largely a matter of controlling the annual harvest by hunters. Strict curtailment of woodcock shooting for a number of years has evidently brought about an increase in their number. In many states where woodcocks are residents or visitants, the season has been closed altogether, eleven years in the case of North Carolina.

(Continued on page 21)

Baby woodcocks are brooded under the parent's warm feathers for several days after hatching.

THE HUNTING OUTLOOK FOR 1949-50

By CLYDE P. PATTON

Executive Director, N. C. Wildlife Resources Commission

THE forests, fields, and marshes in North Carolina this year will see the biggest army of hunters in the history of the state, with an expected increase over last year's all-time record. A wide variety of game species will fall to the rifles and shotguns of hunters from October 1 when the season opens on sora rails down in the coastal marshes until February 1 when the season on coons and 'possums closes.

In addition to the list of game species allowed last year, the season will be opened on woodcock this year for the first time in eleven years as a result of a ruling of the U. S. Fish and Wildlife Service which regulates the take of migratory game birds of all kinds.

If all goes well between now and the opening of the various game seasons, Tar Heel hunters can expect one of the most successful hunting seasons in years. There was a heavy crop of quail in most good quail territory, the birds having completed most of their nesting, before a series of heavy rains in late June.

Raccoon hunters should have a fine time of it in eastern counties where raccoons have become so numerous that they have destroyed quantities of corn.

The outlook for wildlife appears to be more favorable than for several years, and as a result of increasing duck and goose populations the Fish and Wildlife Service has given an additional 10 days hunting to wildfowlers and a second goose in this year's bag limit. The bag and possession on ducks remains the same as last year.

Here are the seasons and bag limits for North Carolina hunting in the 1949-1950 season, with a brief summary of the outlook for each species; detailed listing of the regulations may be obtained from pamphlets which have been published by the Wildlife Resources Commission and distributed to hunting license dealers throughout the state. These pamphlets may be obtained by writing directly to the Wildlife Resources Commission, Box 2919, Raleigh, North Carolina.

BEAR

The general bear season opens October 1 and continues through January 2 with local exceptions. The bag limit it two per day, two per person except in Western counties where the daily bag is one with two for the season. Bears are fairly plentiful where shooting is allowed.

The deer season is the only complicated season on the books this year. Game management, carried on intelligently, must consider the relative abundance or scarcity of any species in determining the harvest, and deer populations vary widely in various parts of the state. As was the case last year, most of this year's deer hunting will be done in the eastern and western parts of the state, with few deer and little deer hunting in the Piedmont region. In most eastern counties the deer season opens October 15 and continues through January 2, with local exceptions in Dare County. In a block of 13 counties toward the central part of the state a shorter deer season from October 15 through December 15 will be in effect. Only six days, three in November and three in December, will be open to deer hunting in the extreme western end of the state. Bag limits for deer include bucks with visible antlers at the rate of one per day, two per season in the eastern counties, and one per day and one per season in the western part of the state.

Deer populations seem to be holding up in most areas where the species is present, and complaints of deer damage to farmers from eastern counties indicate that deer hunting should be good on the eastern coastal areas.

RUSSIAN WILD BOAR

A limited number of hunters will take wild boar in Cherokee, Graham, and Clay counties only, with

one per day and two for the season allowed in the bag. It is doubtful that wild boars have made any appreciable increase during the past year, and little is done to encourage any important increase in the species. The wild boar competes with more important game species for food, and boar populations must be kept within reasonable limits.

RACCOON

Raccoons may be hunted with guns and dogs from October 15 through February 1 in all of the state except where the species is scarce. In Union, Cabarrus, and Rowan counties no coon hunting will be permitted this year. Except in several western counties where a bag limit of one per day, there is no bag limit on raccoons. In most of North Carolina, extremely low prices for raccoon pelts have resulted in a small demand for these animals, and as a result, they have been increasing for a number of years.

OPOSSUM

The entire state will be opened to 'possum hunting from October 1 through February 1 with no bag or possession limit. The lack of bag limits indicates the abundance of 'possums throughout most of the state.

RABBITS

In popularity and numbers taken each year, cottontail rabbits and related species are one of the most important game species. The season on rabbits opens on November 24 and continues through the end of January in all but a few western counties where the season is from November 10 through January 10. A daily bag of seven will be allowed, with 14 in possession and no season limit. Many biologists consider that rabbits are still in a low ebb of the cycle, but may be increasing.

SQUIRRELS

Gray squirrels are probably second only to rabbits in popularity with Tar Heel hunters. The general season is from October 1 through January 2, with the season ending December 15 in western counties. Bag limits for squirrels are eight per day, 16 in possession, and 100 for the season in areas where the season ends January 2, with six per day, 12 in possession, and 75 for the season in counties where the season ends December 15. Both bag limits may include one fox squirrel per day, two in possession, and ten for the season. Squirrels are apparently holding their own as far as numbers are concerned, with local increases or decreases over last year's supply.

QUAIL

The bobwhite quail is North Carolina's favorite game bird, and an increase over last year's supply has made possible a longer season this year. In most of the state the bird season will open on November 24 and continue through January 31, with no time out for lay days. In western counties, where quail are not so numerous, the season will end on January 10. Bag limits for quail are uniform throughout the state, with eight allowed per day, 16 in possession, and 100 for the season.

The Wildlife Resources Commission believes that continued expansion of its farm game program will result in a constantly increasing quail population, with more liberal seasons and bag limits as more quail habitat is developed.

WILD TURKEYS

Again this year, the Wildlife Resources Commission was faced with a decision between no turkey hunting whatever, or a restricted kill of gobblers only. It chose the latter, and set up a turkey season which opens on traditional Thanksgiving Day and closes January 31. Only one gobbler will be allowed per day, two in possession, and three for the season.

Apparently some progress is being made in bringing about an increase in wild turkeys in this state, but nowhere are the birds numerous. A number of turkey hunters have complained of the "gobblers only" regulation, stating that in many cases it is impossible to tell the difference between gobblers and hens. It will be necessary, however, for turkey hunters who are in doubt as to the sex of the bird to hold their fire or risk arrest for wrongfully killing a hen.

RUFFED GROUSE

Because of its western highlands, North Carolina has the southernmost population of ruffed grouse

Grouse hunting in the mountains is a rugged sport.

in the country. Enough grouse are produced in the rugged areas of mountain counties to permit a season beginning October 1 and continuing through January 2, with a daily bag of two birds, a possession limit of four, and a season limit of 20.

Grouse hunting is a rugged sport, and apparently does not attract enough hunters to cause concern with regard to over-shooting. Grouse are well known for their fluctuating population cycle, and the species seems to go from high to low population levels without regard to management practices. North Carolina's grouse have apparently passed the peak of the cycle and may become less abundant for several years.

PHEASANTS

North Carolina will have a pheasant season this year—with restrictions. Sportsmen and sportsmen's organizations who have reared or purchased ringneck pheasants to release for wing shooting may do so from October 1 through January 10 with the bag limit depending on the number of birds produced or purchased for release.

Ringneck pheasants have been stocked in North Carolina from time to time, but have failed to become established well enough to produce a shootable population.

FOXES

The controversial fox may be taken with guns when the season is open for any other games species except where local fox laws regulate the kill.

MIGRATORY GAME BIRDS

Because of an increase in wildlife populations throughout the country's four flyways, ducks and geese may be taken for a period ten days longer than last year's season. The bag limit on ducks will be the same as last year, with four daily, and eight in possession. In the case of geese, however, the bag and possession limit has been increased to two Canada geese and its related forms, or two white-fronted geese, plus three blue geese, making a total allowable bag of five birds. The duck and goose season opens at noon on November 29 and continues to one hour before sunset on January 7. Shooting hours for ducks and geese will be from one-half hour before sunrise to one hour before sunset except on opening day when the shooting begins at 12:00 noon.

Another split season on doves is in line for this year. The first season extends from September 16 through September 30, and the second from December 31 through January 14. Ten birds will be allowed daily and in possession, with shooting hours from noon to sunset each day of the open season. Special regulations for taking migratory game birds will be the same this year as last.

Woodcocks, or "timberdoodles" as they are often called, may be taken from December 12 through January 11, with a daily bag of four and a possession limit of eight. Shooting hours and other regulations for woodcock are the same as for other migratory game birds.

STORING GAME AFTER SEASON CLOSES

A new law on North Carolina's books will allow hunters to keep their game for an indefinite period after the close of the season, with the exception of migratory game birds. Federal law requires that ducks, geese, woodcocks, doves, and other migratory game birds be disposed of within 90 days after the close of the season. Other game, however, may be kept for any length of time, provided it is taken legally and is reported to the local game protector.

Raccoons are so numerous in eastern counties that they have done heavy damage to crops. Shown here is corn damaged by 'coons.

Ignorance of the law does not excuse law violators. Copies of the 1949-1950 hunting regulations are available at license dealers throughout the state, and may be obtained by writing directly to the N. C. Wildlife Resources Commission, Box 2919, Raleigh.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

ALL TAR HEEL SPORTSMEN ARE INVITED AND URGED TO ATTEND THE STATE MEETING OF THE N. C. WILDLIFE FEDERATION ON OCTOBER 30 AND 31 AND THE ANNUAL MEETING OF THE SOUTHEASTERN ASSOCIATION OF FISH AND GAME COMMISSIONERS ON OCTOBER 31 AND NOVEMBER 1 AND 2 WHICH WILL BE HELD AT HOTEL CAROLINIAN ON THE BEACH AT NAG'S HEAD. THESE ARE TWO IMPORTANT MEETINGS, AND SHOULD BE WELL ATTENDED

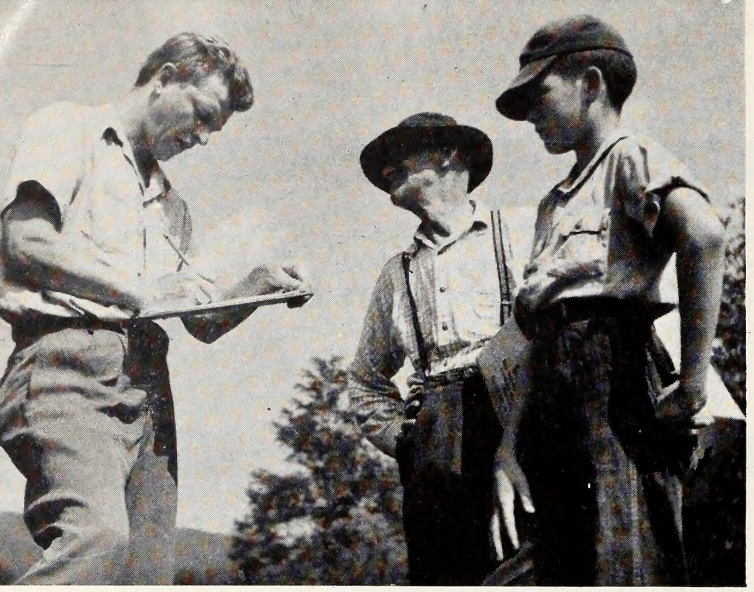
DR. WILLIS KING, CHIEF OF THE WILDLIFE COMMISSION'S FISH DIVISION AND EXECUTIVE ASSISTANT, RESIGNED HIS POSITION WITH THE WILDLIFE RESOURCES COMMISSION EFFECTIVE SEPTEMBER 15 TO TAKE A POSITION WITH THE TENNESSEE DEPARTMENT OF CONSERVATION. AT PRESS TIME WILLIAM C. LEWIS, A NATIVE OF FAISON, WAS BEING CONSIDERED TO REPLACE DR. KING. LEWIS IS A GRADUATE OF N. C. STATE COLLEGE WITH M.S. AND PHD. DEGREES FROM IOWA STATE COLLEGE IN FISHERIES BIOLOGY.

JUDGE A. R. WILSON OF THE RECORDER'S COURT IN DURHAM COUNTY HAS RELEASED A PRESS NOTICE TO DURHAM COUNTY NIMRODS THAT HE EXPECTS THEM TO OBTAIN COPIES OF THE 1949-1950 HUNTING REGULATIONS SO THAT THEY WON'T HAVE TO BE APPEARING IN HIS COURT ON CHARGES OF VIOLATING THE GAME LAWS DURING THE CURRENT SEASON. JUDGE WILSON HOPES THAT OTHER RECORDER'S COURT JUDGES IN THE STATE WILL ISSUE SIMILAR NOTICES.

READERS OF "WILDLIFE" WILL MISS THE EXCELLENT PICTURES AND STORIES BY JACK DERMID WHICH HAVE APPEARED IN MANY RECENT ISSUES. JACK HAS RESIGNED HIS POSITION WITH THE EDUCATION DIVISION TO OBTAIN A MASTER'S DEGREE AT OREGON STATE COLLEGE—BUT WILL BE BACK ON OUR STAFF AGAIN IN ABOUT 18 MONTHS.

THE WILDLIFE RESOURCES COMMISSION HAS LED OFF A POSTER CAMPAIGN WHICH MAY DO MUCH TO GET PUBLIC SUPPORT BEHIND ONE OF THE FINEST GAME AND FISH PROGRAMS IN THE COUNTRY. LEAD-OFF IN THE CAMPAIGN WERE THOUSANDS OF "HUNTING BY PERMISSION ONLY" POSTERS WHICH MAY BE SEEN ON HUNDREDS OF TAR HEEL FARMS TO ENCOURAGE BETTER RELATIONSHIP BETWEEN FARMERS AND SPORTSMEN. 6,000 SAFETY POSTERS WERE OBTAINED AT HALF PRICE FROM THE SPORTING ARMS AND AMMUNITION MANUFACTURER'S INSTITUTE AND ARE BEING DISTRIBUTED BY WILDLIFE CLUBS.

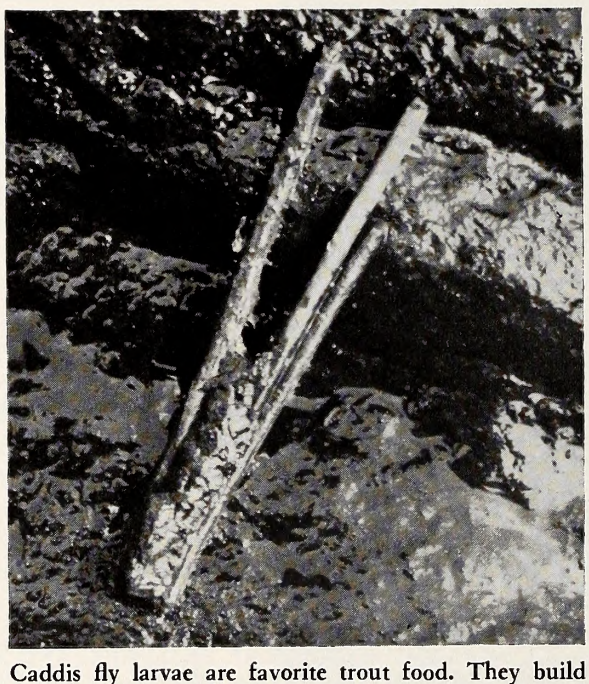
IN ADDITION TO THE ABOVE, A SERIES OF FOUR-COLOR POSTERS ARE BEING DISTRIBUTED TO PLACES WHERE SPORTSMEN GATHER. ENCOURAGING SUPPORT OF GAME AND FISH LAWS AND PROMOTING CLEAN SPORTSMENSHIP. WATCH FOR THESE SIGNS AND POSTERS!



Survey party leader Joseph Bailey, Duke University, interviews an "Old Timer" to get important notes on fishing pressure and background data.

Forest cover and other general conditions are noted and recorded as part of the stream survey.

. . . then begins tedious task of analysis to identify types of food organisms present.



Caddis fly larvae are favorite trout food. They build cases of small pebbles such as shown attached to twigs.

STREAM

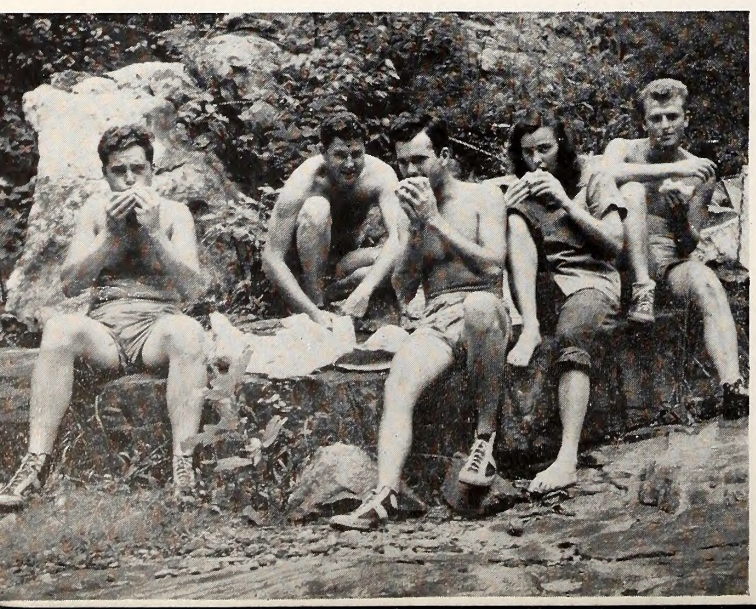
(Photos by

In order to mana intelligently, they r evaluated to determi

During the past have been survey streams and lakes.

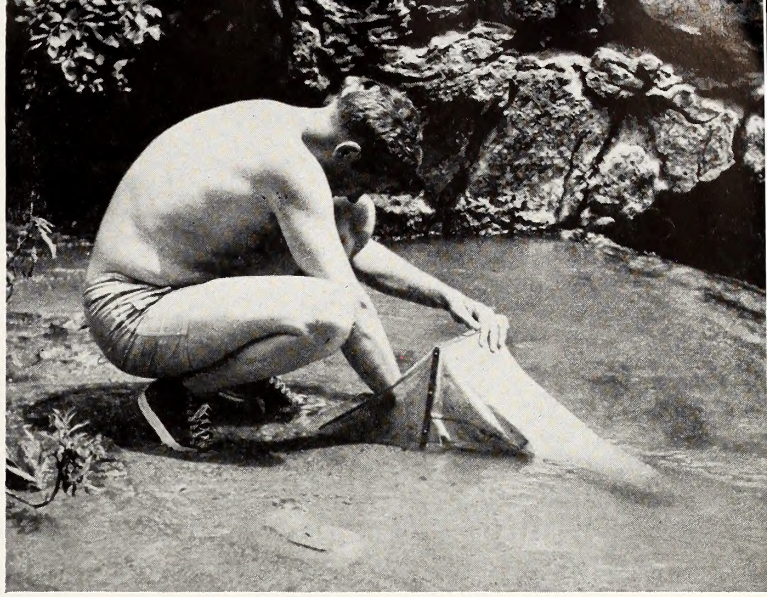
Shown here are th party working in the the western part the

Vigorous work of stream surveys creates good appetites. L. to R. are: J. R. Charles, H. M. Ratledge, L. P. Wilkins, Mrs. Bailey ("Mike"), and Dr. Bailey.



Minnows and other free-swimming trout food are caught in nets and evaluated to determine trout food supply.

Speed of flow multiplied by size of stream gives volume of stream in cubic feet per second. Dr. Bailey and Hayden Ratledge, Fish Biologist, measure speed of current.



Ratledge collects a bottom sample to measure availability of fish food organisms in stream bed . . .

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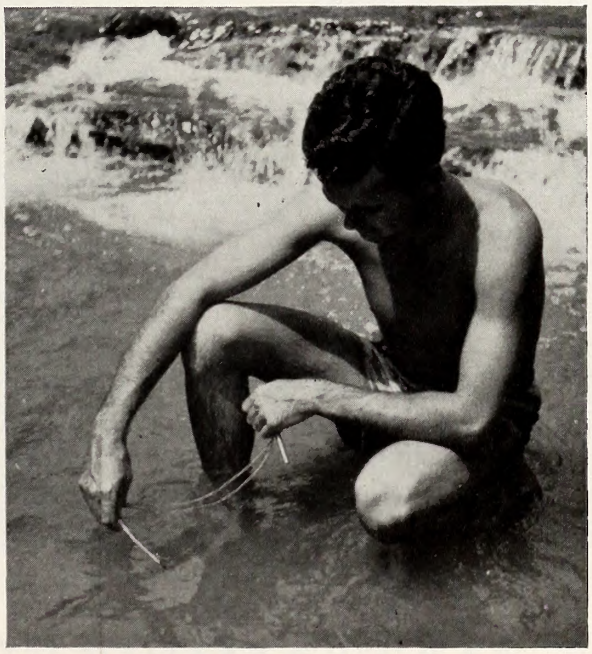
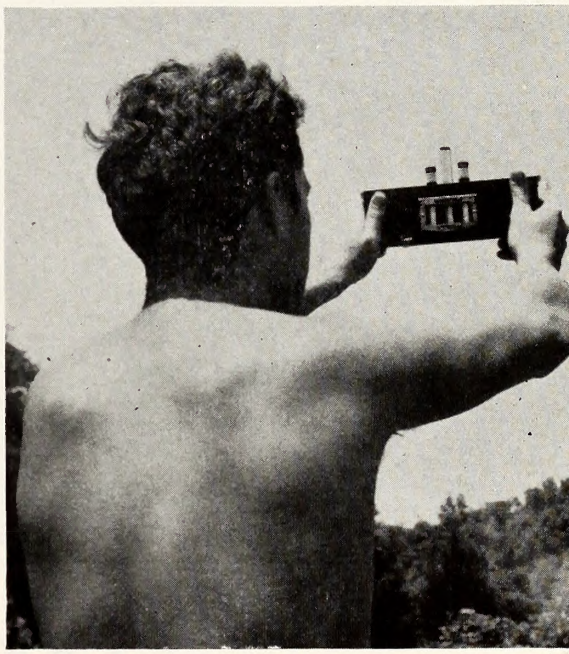


Temperature readings are easy to take, but important. J. R. Charles, a wildlife student, is holding a thermometer. Streams must be cool to support trout.



J. R. Charles, another wildlife student, reads a special instrument to determine whether water is acid, neutral, or alkaline.

Seining pools in swift streams is hard work. Presence of tiny trout indicate natural trout production in the stream.

Homework is left for rainy days. Fish taken in nets are identified, measured, and recorded.

Straight lines of open water mark what were once drainage canals. White specks are swans which winter at Mattamuskeet. (Aerial photo by Rod Amundson)

LAKE MATTAMUSKEET

And The Failure Of The Effort To Drain It

By Mary P. Ward
Craven County Welfare Department

UNDER the waters of a Carolina lake lies buried what remains of the greatest agricultural experiment of recent years, perhaps of all time, and there is little to be seen of it as such. A few of the experiments made will be of interest in the agricultural history of the United States so perhaps the seventeen million dollars expended are not a total loss.

Hyde County was one of the original precincts of North Carolina and it existed prior to 1729. It was named for Edward Hyde, governor of the colony, whose commission was dated January 24, 1711. The county seat was established in Swan Quarter in 1835. Hyde suffered from the beginning from too much water, too little transportation and poor communication. Until the building of a paved highway from Belhaven to Swan Quarter in the nineteen twenties, the main method of approach from the outside world was by sailboat. The soil is black and oily and dirt roads were often impassable even if they were not actually under water. Severe crop failures were frequent and the young people sought their fortunes elsewhere.

Lake Mattamuskeet, or Dry Dust in the Indian tongue, is a body of fresh water approximately eighteen miles long and six miles wide. The lake bottom is said to contain seventy-five square miles of the richest soil in the world and it has been com-

pared in fertility to the Valley of the Nile. The idea of draining and converting it to his own use has intrigued man for a hundred years. He saw no reason why he might not build a new Holland, another land below the sea, in the new world. Finally, thinking himself sufficiently armed with finances and equipment, he joined battle with Nature, but in the end the forces of Nature won. The birds, the fish and the wildlife which had been temporarily displaced returned to find a bigger and a better hunting ground. Their gift "from the firegod had been twice kidnapped and twice restored by man."

Some say that the lake is of meteoric origin, others that it is a natural depression and was once an arm of the sea. The Indian story of a severe drought and a tremendous fire which burned for more than thirteen moons agrees with a third theory that it was an enormous peat bog which finally burned itself out. It seems unlikely, however, that a fire would burn so far below sea level so near the waters of Pamlico Sound. The United States Geologic Survey inclines to the opinion that the lake is of natural origin and was once a large juniper swamp. The bottom still contains juniper logs and stumps which free themselves occasionally and float to the surface. Many are charred, and peat beds around the lake still burn.

Mattamuskeet is shaped like a saucer and is three feet below sea level. It is one and one-half to five feet deep and is gradually filling up from the wash from the soil around it with a decided uplift of the bottom. It is said to have been at one time six to eleven feet deep and to have supported a small amount of navigation. It was never deep enough to be of much value for shipping but we are told that before the Civil War the citizens of Hyde loaded corn on flats and floated it to the south side of the lake, shipping it again from there. As early as 1773 they had introduced a bill aimed at cutting a navigable canal from the lake to Yesocking Bay. This bill passed but was vetoed by Governor Josiah Martin.

The first drainage board appointed in the United States is said to have been appointed by Governor Johnson in 1789 and its purpose was to make the lands of Hyde County available for farming. This board was given power to act but it was hampered in its activities by the fact that no canal was to cross the land of anyone who objected. There is no record of any real accomplishment. A canal to connect Fairfield with Alligator River and the sound was dug by slave labor in 1861 and reopened in 1869. In 1861 the press of the State Deaf and Dumb Asylum issued an article dealing with the richness of Hyde's soil and stating that tracts around the lake had been in cultivation for seventy years without the use of commercial fertilizer.

In 1835 the legislature had authorized the State Board of Education (which owned the lake bottom under the statute giving it wastelands) to drain the area, but sufficient funds were not available. Another effort at drainage was begun in 1909 when the legislature passed a special act permitting the State Board of Education to cooperate with owners of the land around the lake in forming the Mattamuskeet Lake Drainage District. A half million dollar bond issue was floated and the drainage which followed resulted in the harvesting of many tons of wild hay with no expense except for cutting. A pumping station was erected and an elaborate system of canals was begun. The immensity of the undertaking had not been realized, funds for its completion were not available and work had to be stopped because of caving canals which followed heavy rains and the floods which resulted. Those who had been skeptical from the beginning hastened to say that "the lake's been here and the lake's coming back." They believed that the whole scheme was fantastic and that man would succeed only in upsetting the balance of Nature.

Mattamuskeet had always been capricious, suffered from sharp winds and wind tides which would pile the water up four or five feet deep in one section and leave another almost dry. At such times the water would pour in a mighty floor through the canals and the task of making any part of it useful appeared impossible. Work was not seriously undertaken until 1915. The drainage district embraced one hundred and fifty square miles, much of which was swamp while other was rich black soil. State engineers had made surveys and recommendations. J. O. Wright particularly had taken a great deal of interest and thought that the whole area might be effectively drained. Because of the expense and the difficulties involved the State Board of Education hesitated to undertake the task and sold its holdings to D. N. Graves of Winchester, Massachusetts, and his associates. The Southern Reclamation Company

This building was once the biggest water pumping station in the world. It is now a resort hotel and hunting lodge, and the smokestack is an observation tower.

Trees still hold the banks of a main drainage canal, but wave action is rapidly killing woody vegetation.

was formed but as the enterprise expanded the name was changed to New Holland Farms. This company proved to be under-financed and found it necessary to sell in 1917.

The holdings were next purchased by an Ohio firm which formed North Carolina Farms, a subsidiary of the R. L. Dallings Company. This failed in 1923 and went into receivership in 1925. The property was then sold to August Hecksher, philanthropist and builder of model tenements, who lived in New York, but whose interests were widely scattered. Mr. Hecksher was eighty-one years old, and was said to be worth eighty million dollars and more interested in making a success of the project than in realizing any profit from it. In 1915 the Mattamuskeet Drainage District Commission had placed in the main part of the pumping plant a tablet containing the following inscription: "This plant is dedicated to the spirit of cooperation which has transformed this great lake into dry land and so created a new and fertile principality for the use and possibility of man." To this they had added the famous words of Daniel Defore which expressed so well the sentiments of Mr. Hecksher, "and he gave it as his opinion that whoever could make two ears of corn or two blades of grass to grow up on a spot of ground where only one grew before would deserve better of mankind than the whole race of politicians put together." The owner felt as did Mr. Graves, now general manager, that it was not the project which had failed but the companies which had been behind it. Without seeing the property Mr. Hecksher spent during the first two and a half of his six year's ownership a million and a half dollars in repairing the pumping plant, cleaning ditches, clearing canals and planting crops. He was determined to succeed where others had failed.

In order to proceed with the work it was necessary to overcome the opposition of numerous landowners who continued to fight the whole scheme on the ground that it was an impossible undertaking and not worth the cost, the soil was too sandy for farming, their lands would not be benefitted, the sound might back up through the very canals built to take the water away. But five floating dredges were at work for two years. In three it looked as if success had been achieved. A rainfall of twenty-seven inches in three months, twelve of which fell in one, left parts of the county under water but the drainage site in good shape. Promoters felt that they had been vindicated and were more hopeful than ever of supplying northern markets, inducing big packers to establish plants near their site and of shipping wheat directly to Liverpool.

The head of the farming corporation at this time was Thomas D. Campbell of Hardin, Montana, who placed A. B. Taylor of the same state in charge of actual operations. Mr. Campbell had an excellent reputation as a big scale farmer and executive having realized amazing profits from seventy-five thousand acres of Montana land and having served as engineering advisor to the Soviet Government in large scale farming operations in Russia. He had been considered by President Hoover as Secretary of Agriculture. Mr. Campbell stated publicly that farming in the East on a large scale was the greatest opportunity in the world and that Hyde presented the best opportunity that he knew for such farming, that wheat could be raised and shipped from there at considerably less cost per bushel than from Montana.

Drainage of the lake involved the use of culverts which drained to canals. There were one hundred miles of canals, twenty to one hundred feet wide and one and one-half miles apart. Many resembled creeks. There were fifty miles of ditches for each one thousand acres of land developed. The pumping plant had four centrifugal Corliss engine steam pumps, each with a capacity of two hundred and fifty thousand gallons of water per minute. Four foilers with three thousand horsepower were in use and eight miles of water barrels could be filled in one minute if necessary. Usually only one or two units were used at a time. the operations depending on rainfall and resulting water. All canals could be pumped dry in one day. The lake bed had no springs or streams but as much as sixty inches of rain had been known to fall in one year. The pumps had a lifting power of more than ten feet and water was raised from the canals almost fifteen feet higher than the plant. It appeared that even a flood or a cloudburst could be handled and engineers from Florida and other states came to study the system and methods in use.

In the drainage district now were forty-eight thousand acres owned by the company and fifty-one thousand privately owned (six hundred tracts with four hundred and fifty owners). On the drainage

board were two representatives of the New Holland Company and one representative of the private owners.

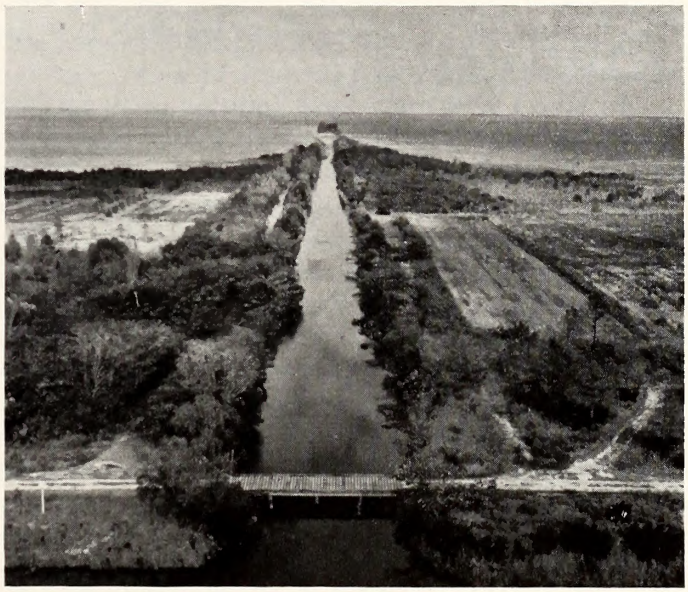
Harlan P. Kelsey, landscape architect of Boston, was engaged to lay off the town of New Holland on a thirty acre site with trees, shrubbery and flowers. He established a nursery. Streets were laid off. a water and sewer system installed and an electric plant built. Twenty-five miles of highway were constructed with heavy bridges to support sturdy equipment and trucks. A railroad was brought from Wenonah, Washington County. Construction included office buildings, machine shops, warehouses, a post office, an elevator, a number of residences and a hotel in which the Dutch motif prevailed in the decorations and was even used on the silver. Dutch farmers were busily at work on the farms.

The best agricultural experts in the world were called in to analyze the soil and to offer their advice. Fifty-one tractors were at work. All machinery was equipped with electric headlights and most of it was in use thirteen hours a day. A thousand acres were planted in rice under conditions considered ideal and the crop came to maturity but could not be harvested because it was covered with several inches of water and the pumps refused to work. The largest acreage of soybeans in the world went to waste. Buckwheat, popcorn, aspedeza, barley, celery, asparagus, rye, oats, and flax suffered the same fate. While the average yield of potatoes in the state is one hundred bushels to the acre, nine hundred grew here only to be devoured by grasshoppers and army worms while corn borers made short work of other crops shortly before they were ready for harvesting.

In 1933 when in spite of bumper crops it has been impossible to place much of the harvesting machinery because of mud and slime which stood knee deep in some of the best fields, Mr. Hecksher, through his personal representative, George Knapp, ordered the suspension of all activities and placed the property on a caretaker basis. He had not only spent millions but had been disappointed in the attitude of Hyde County farmers who had not cooperated as he had expected. By terms signed at the time work was undertaken, the land was to return to the state if operations ceased. Things looked dark indeed. Farmers who had hoped to benefit from the drainage were no longer able to pay their taxes and their creditors were suffering because they could not meet their obligations. It was proposed that the site be sold to the federal government for a game preserve as it appeared that no other solution to the problem was practicable. The part of the town which could be moved was reconstructed on higher ground and the pumping plant was dismantled.

By decree of Superior Court signed by Judge N. A. Sinclair in October, 1934, the lake bottom was excluded from Mattamuskeet Drainage District and all legal proceedings incident to the sale of the land to the government approached completion. Landowners adjacent to the lake were permitted to drain into the lake as they formerly had without payment of any assessment or charge. They were assured that public shooting would be permitted on part of the area after it was taken over by the government. The canals leading into the lake would not be dammed but flood gates would be built to keep the water from reaching an excessive height.

The foregoing promise did much to calm the fears of those citizens who had never quite been committed to the drainage scheme and who felt now that things had turned out exactly as they had expected. The dream of certain visionary citizens and outsiders was pleasant enough while it lasted but was never supposed to come true. The waters of Mattamuskeet could not be controlled by even the largest pumping plant in the world.



Water in the lake and the main canal is almost at mean sea level, a factor which made it impossible to keep the lake bed drained.

Part of the Lake Mattamuskeet Waterfowl Refuge will be opened to waterfowl hunting this year. Mattamuskeet is the wintering grounds for a world-famous concentration of Canada geese and whistling swans, and a Mecca of waterfowl hunters.

WILL THE *Stripers* COME BACK?

By WILLIS KING

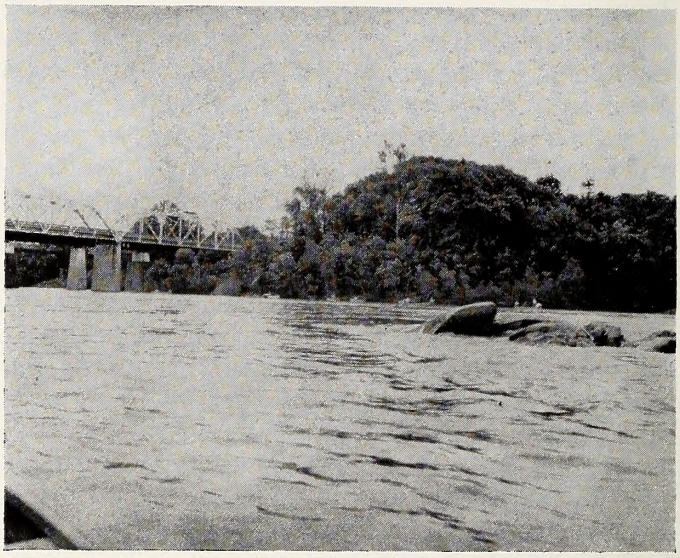
Former Chief, Fish Division

Photos Courtesy Max Zager, Greensboro, N. C.

IF you should be fortunate enough to be in northeastern North Carolina during April and May, one of the topics of discussion is certain to center around one of the gamest of fishes, the striped bass or rockfish. Whether you are talking to a lawyer, your doctor, your farmer friend, a shop worker, or someone who can make no claim to any occupation, you have hit on a subject which is certain to bring comment. Fishing for striped bass, whether you use a bow net, a feathered spoon, or a piece of mullet, is accompanied by a state of mind approaching a disease. When the stripers are running, all else is cast aside. It makes little difference the time of day, the weather, or whether the garden needs weeding. Fishing is the order of the day.

The object of so much consideration is the striped bass (*Roccus saxatilis*), a member of the sea-bass family (*Serranidae*). This fish is rated as a game species when taken from inland waters, and as a commercial fish when taken from commercial fishing waters. The difference, which the fish seems not to recognize, is that when he is taken from commercial waters there is no creel limit and he may be sold on the open market. Here, also, he may be taken with an assorted variety of nets, such as pound nets, stake and drift gill nets, seines, and the characteristic bow or skim net. In inland waters, he is given protection from all nets, and may be taken only by pole and line, by trolling and casting. Sale of striped bass taken from inland waters is prohibited, and a creel limit of 8 fish per day is imposed. It is unlawful to retain stripers less than 12 inches in total length, regardless of where or how taken.

The striped bass ascends the larger coastal rivers in the spring of the year in search of spawning grounds. This habit places it among the anadromous fishes. Stripers which make the spring migration are approaching their third birthday or are older. The males ordinarily weigh from 1 to 5 pounds, although a few are larger. The females average larger and weigh from 3 to 15 pounds, with occasional individuals reaching 40 to 50 pounds in North Carolina waters. The wonder is that any fish reach their spawning grounds. One investigator counted at least 5,000 nets in Albemarle Sound alone. The fish that ascend the Roanoke River pass additional haul seines, must go through several miles of badly polluted water, then dodge a series of bow-net fishermen and shun every piece of bait, feather lure or spoon. The drive behind such a migration is indeed



The Roanoke River at Weldon, approaching flood stage. Bridge is dividing line between commercial and inland waters.

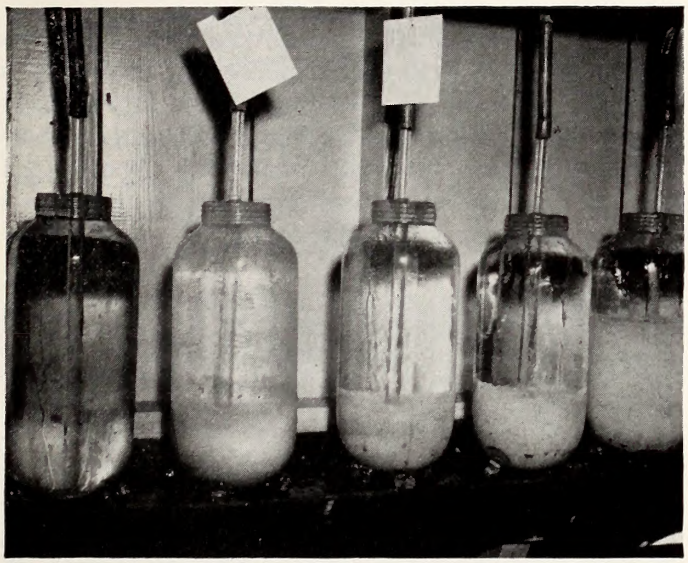
motivated by the strongest of natural urges, that to reproduce its kind. These spawning migrations occur in most of the coastwise streams, but the greatest numbers of fish are found in tributaries of Albemarle Sound. The Roanoke River has long been famous as the principal migration stream of the rockfish, with Weldon as the center of operations.

After a period of a few weeks in the fresh-water streams the stripers move back down stream to the bays and sounds where they spend the summer and autumn months. Favorite habitats are the deep holes near the mouths of creeks and along bridges or causeways. Here they are fished for by fishermen using outboard motor boats and trolling gear. Some of the fish undoubtedly go to sea, but whether all do is not known, nor can biologists trace with certainty their movements in salt water off our Carolina coast. None have been taken in the surf along our coast, while farther north this method of fishing is considered excellent sport. The reason for this may be the shallowness of our beaches and the absence of a rocky shoreline.

In hopes of perpetuating the run of striped bass in the Roanoke River and to re-establish the fish in rivers where their numbers are so small as to make successful reproduction unlikely, a small egg-taking station and hatchery was built at Weldon. The operation of the hatchery exemplifies a truly cooperative project. The small building and land are owned by the City of Weldon, the equipment for hatching the

eggs is owned by the U. S. Fish and Wildlife Service, fishermen bring in the "ripe" fish, and the State pays the labor costs and distributes the fry. All working together accomplish what none could do alone. The Wildlife Resources Commission justifies its part in this program on the value of the striped bass as a game fish. There are numerous streams in eastern North Carolina which are capable of supporting spawning runs of striped bass, but which receive few or none of these excellent fish. It is hoped that by stocking fry in these streams, runs will be established which will benefit the sport angler and the commercial fisherman alike, although it is impossible to verify the results obtained from stocking fry. Improved fishing for striped bass has been reported from the Tar and Neuse rivers, which might well have resulted from stocking efforts.

According to data furnished by William C. Bunch, Superintendent of the U. S. Fish and Wildlife Service Hatchery at Edenton, the hatching of striped bass eggs was first started at Weldon in 1906. The operation has been continued with minor interruptions since that year. The peak year was in 1921 when 55,130,000 eggs were reported taken and 43,815,000 fry hatched. Since 1937 when the present hatchery building was first used, 1942 is the only year the hatchery was idle. Table 1 gives the data as available on the egg take and hatch of fry from the 1937 season through 1949. In recent years the take of eggs has been far below the capacity of the hatching station to care for them. In 1949, 29 female striped bass provided 6,625,000 eggs. The smallest number received from a single fish was 30,000, and the largest number was 660,000. Unfortunately, weights of the fish were not recorded. Female fish weighing 5 pounds may produce a half million eggs.



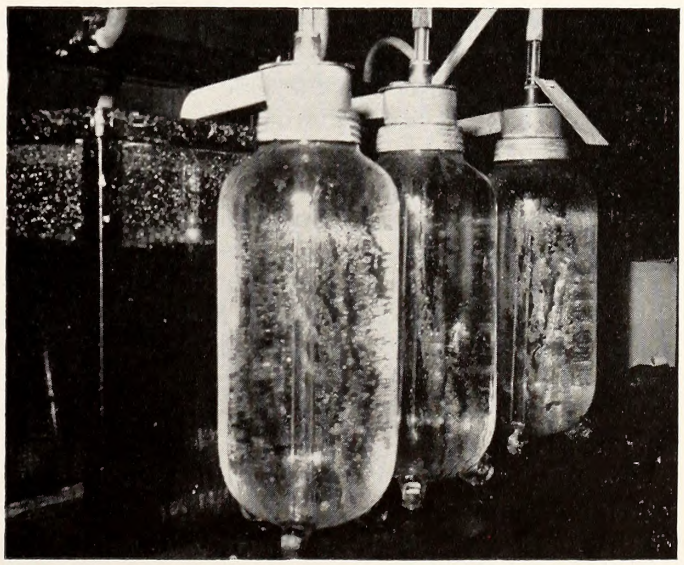
Striper eggs are stripped from female, fertilized, and incubated in running water. Tags show size of female and name of sportsman who brought her in.

Prior to 1949, a fish culturist from the U. S. Hatchery at Edenton was in charge of the Weldon Hatchery operation. The equipment consists principally of glass jars similar to those used in hatching shad or walleye eggs, and tanks or aquaria to receive the fry. "Ripe" fish are brought to the hatchery by fishermen who leave their fishing long enough to bring in the heavy female fish. The fish must be opened up in order to take the eggs. Almost always, male fish can be taken in numbers wherever a gravid female is found. The males engage in "rock fights" in their effort to get the female and participate in the spawning act. This usually takes place at the surface where the current is fairly strong. No nest is built and the parents have no feeling of responsibilty for their progeny.

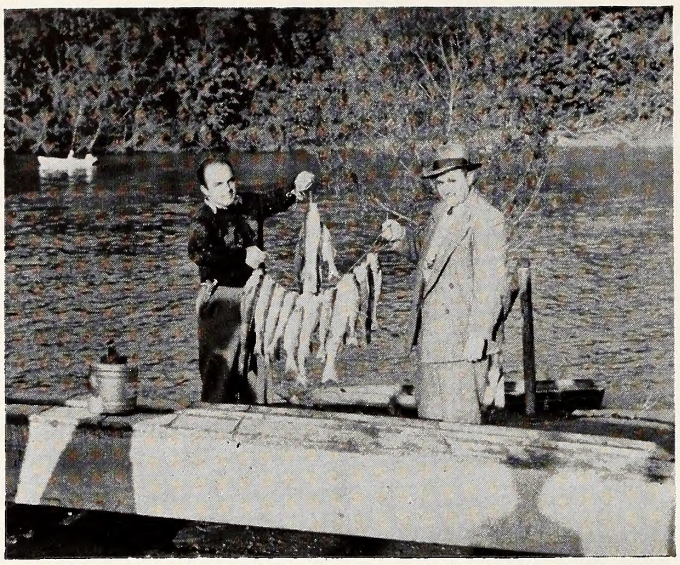
Water for use at the hatchery is provided from the city water mains and fed to the jars through flexible rubber hose. After a period of about 12 hours, the eggs have swelled to their maximum size. They are then measured and the fishermen credited with the correct number of eggs.

The temperature range when spawning occurs has been checked at from 62° to 70°F. How much variation can still occur and spawning be successful has not been determined, although fry have died after exposure to water in the 50's. Water must be kept flowing through the eggs for them to hatch. The eggs hatch after about 40 to 48 hours at temperatures of 64° to 68°F. The fry are very energetic and swim upward. In the hatchery they are carried out a spout attached to the jar, and pass into a tank or aquarium. The small fish are transparent and about ¼ inch in length when they emerge.

Experience at the hatchery showed that the fry could not be held more than 12 to 24 hours after hatching without experiencing a high mortality. This may be caused by unsuitable conditions forced on the fish by an unnatural water supply, or it may



When eggs hatch, jars are connected to an aquarium. The fry swim through overflow into the aquarium. Since they cannot be fed, they are stocked almost immediately.



A nice string of stripers, or rockfish, from the Roanoke River at Weldon.

result in part from overcrowding and starvation. The fish were usually released before the yolk sac was fully absorbed.

Here again special care had to be exercised to prevent heavy losses, since the fry must be handled carefully and not subjected to severe shock. A rough road or a hard-riding truck are not conducive to getting the fry to the streams in good condition. Milk cans of 10 gallon capacity and a sedan delivery vehicle were found to be the best means of carrying the fry to the point of release. About 2 hours travel time was the longest haul successfully accomplished.

Table 2 shows the distribution made of the fry from Weldon this year. Some chilly nights, lack of experience in caring for the fry, and attempts to transport them over too great distances contributed to mortality in some instances. Almost continuous high water held the fishermen away from the Roanoke River many days. Practically all fish taken were caught in dip or skim nets. The water remained muddy, preventing the use of trolling lures or casting for the stripers. Considerable experience was gained in carrying out the project in 1949, and it is believed that a better job can be done in 1950.

One of the interesting points apparent in the record of the take of eggs and hatch for the period 1937-1949 at Weldon is the evidence of recurring cycles of population numbers. A good take of eggs has been followed 3 years later by another good year. Likewise a poor year seems to be followed by another poor year in 3 years. It would be very interesting to compare the catch of striped bass by commercial fishermen with the records shown in Table 1. Unfortunately, an accurate record of fish taken by commercial fishermen is not kept. A study of this nature would throw much light on the life history and conservation needs of the striped bass. If the trend for a peak year every 3 years holds, 1950 should be a good year.

If eggs are to be taken in greater quantity, a more certain method of collecting the fish must be developed. The restoration of an old "slide" or trap at the first cascade just above the hatchery has been proposed. In low water conditions, this would be quite effective. A second need of the program is to develop facilities to hold the fry for a longer period in a more favorable environment than that afforded by the present facilities at Weldon. This is being studied by Commission biologists in the hopes of working out a plan whereby the fry can be transferred to rearing pools and held until they are more nearly able to protect themselves in a natural environment.

The construction of the Buggs Island dam promises to stabilize the flow of the Roanoke River, and insure a favorable condition of the river during the critical spawning season. The alleviation of pollution caused by pulp mills at Roanoke Rapids and at Plymouth would do much to help the status of the rockfish.

The question which is paramount in the fisherman's mind is, "Will the stripers come back?" It is the responsibility of all agencies dealing with or using our water resources to do all within their power to insure the return of the fish. The striped bass is too fine a natural resource to permit its decimation from our public waters.

Parking space at the boat landing near the Weldon hatchery is at a premium during the height of the striped bass run. Hatchery is in background.

Table 1. Eggs of Striped Bass Received and Fry Hatched at Weldon, 1937-1949½

Year	*Egg Take*	*Hatch*
1937	1,160,000	641,000
1938	646,000	515,000
1939	3,413,000	1,798,000
1940	8,075,000	5,917,000
1941	635,000	469,000
1942	No eggs taken	
1943	2,515,000	1,563,000

(Table 1 Continued)

1944	11,168,000	7,618,000
1945	465,000	279,000
1946	6,392,000	3,517,000
1947	11,225,000	7,756,000
1948	2,990,000	1,681,000
1949	6,625,000	2,686,500

[1]Data 1937-1948 supplied by the U. S. Fish and Wildlife Service.

Table 2. Distribution of Striped Bass Fry from the Weldon Hatchery, April 27 to May 19, 1949

Chowan River (near Winton)	171,500
Cashie River (at Windsor)	200,000
Roanoke River (at Weldon)	1,000,000
Perquimans River (near Hertford)	200,000
Pungo River (near Leachville)	100,000
Lake Mattamuskeet (Hyde County)	100,000
Juniper Creek (Hyde County)	75,000
Tar River (near Greenville)	100,000
Tar River (near Tarboro)	200,000
Tranters Creek (Pitt-Beaufort counties)	140,000
Fishing Creek (Halifax-Edgecombe counties)	100,000
Neuse River (near Smithfield)	100,000
Swift Creek (Craven County)	75,000
Batchelders Creek (Craven County)	25,000
Trent River (Jones County)	100,000
Total	2,686,500

(Continued from page 7)

The habitat requirements of woodcock are quite limited, and little has been done by way of habitat control. Woodcock hunters find abandoned farm lands, where a growth of scattered saplings has begun to take over, ideal hunting grounds for woodcock. Biologists in Maine have found that it is possible to create nesting grounds for woodcock by artificially clearing singing grounds, and controlled burning may have the effect of providing suitable breeding areas.

NATURAL ENEMIES

Adverse weather may well be the worst enemy of the woodcock. When the birds misjudge weather conditions and are caught by heavy frosts, great numbers of them may starve to death or die of a combination of starvation and exhaustion in trying to reach areas where food is obtainable. Prolonged drouth, as has been pointed out, may result in a critical shortage of food.

Because of their incautious behavior during the breeding season, woodcocks are vulnerable to many predators. Snakes may take the eggs from a sitting bird, and weasels, mink, skunk, raccoon, opossum, and other four-footed predators may despoil nest and young. Housecats which have been abandoned and left to prey on wildlife for food are known to be a serious menace to woodcocks. Many sportsmen and naturalists believe the housecat to be the worst predatory enemy of the species.

Birds examined by biologists have been found to have a number of internal and external parasites, but no instances of mortality from such causes have been recorded.

Telephone wires, power lines, and other obstructions take a toll of woodcocks annually, but mortality by these factors is more a result of weakness on the part of the birds. Apparently woodcocks have very poor eyesight, and fail to see such obstructions in time to avoid them.

To offset these and other environmental hazards, the nocturnal habits and secretive ways of the woodcock plus rigid hunting control can assure woodcocks a secure place on the list of North Carolina game birds.

DR. E. C. RANEY TO SURVEY STRIPED BASS:

Dr. E. C. Raney, associate professor of ichthyology at Cornell University's Department of Conservation, has been engaged by "The Saltwater Sportsman" and the Massachusetts Fish and Game Association to spend this summer in collecting all available information on the striped bass.

Dr. Raney will visit all of the Research centers, from Maine to North Carolina, which are known to have investigated this species, with the objective of reviewing the status of past and present research on the striper and to propose an outline for further research. The two agencies which are sponsoring the survey hope that, by this means, it will be possible to stimulate research on striped bass in directions where immediate action is urgently needed.

COPIES OF FISH CHECK LIST STILL AVAILABLE:

A limited supply of the excellent reference booklet, "A List of Common and Scientific Names of Better Known Fishes of the United States and Canada" still is available, the Wildlife Management Institute learns.

The result of over 15 years of research by a panel of the nation's foremost fishery experts, this booklet, published by the American Fisheries Society, covers 571 species of American fish and is completly indexed. Fishery students, anglers, and biologists will find it invaluable. Copies may be obtained for 25 cents from Dr. William Beckman, Museums Annex, Ann Arbor, Michigan.

I DON'T BELIEVE IT!!! HOW ABOUT IT??

IS IT TRUE?? HERE IS YOUR CHANCE TO —

GET IT OFF YOUR CHEST!

EDITORIAL COMMENT, LETTERS TO THE EDITOR AND ANECDOTES

Conducted by Win Donat

Our sportsmen friends in Virginia have been enjoying an activity which is now popular all over the state. I refer to the Bear and Deer Antler Contest held the spring of each year to determine the finest set of deer antlers and the largest bear taken the preceding hunting season. Deer antlers only are considered and the bear skull or mounted head is sufficient for entry. The invitation has been extended to the sportsmen of North Carolina to develop a similar contest with a view to having an interstate affair. Do you believe that the finest racks grow in the Old Dominion? Do you want to organize such a contest, statewide? Or for an area only?

This activity does more than furnish amusement; it stimulates friendship between all parts of the state and provides valuable information most urgently needed by the Commission's technicians.

Address your letters requesting further information to me and I'll get the full details for you directly from the founders of the Virginia Contest.—W.D.

From Mrs. R. L. G., Route 2, Cleveland, N. C., "We have a farm pond which we have just built and stocked. We would like to know if ducks will destroy the fish eggs and small fish. Would it be wise to keep our ducks or should we dispose of them?"

Farm fish ponds have many values and one of the chief of these is esthetic. We feel and often advise pond owners that all forms of life that might add beauty and interest should be encouraged. Ducks might do occasional damage to fish eggs but there is a possibility that they do more good in the form of mosquito control. The chief objection to a large number of ducks is that they might keep the water of a small pond muddied thereby excluding the sunlight and providing an artificial silting condition. Mallards would be the least objectionable in this respect. We would like to remind pond owners that it is just as necessary to harvest the fish crop they produce as it is to stock the fish in the first case.

From Mr. K. M. Sprunt, Orton Plantation, Wilmington, N. C., "...In the article titled 'Play It Safe' (July, 1949) the writer speaks of a number of good remedies for poison ivy. I think it would be of great interest to many of your readers (including myself) to have the brand names of these..."

We should like to be able to list the brand names requested, but for ethical reasons we cannot. However, there are several home remedies, one of which I have found to be more effective than others. Since it is almost inevitable that poison ivy will be scratched, scratch it with dry table salt crystals; they will rupture the blisters and seem to counteract the poison as well as relieve the itch. Also, your druggist will make a solution of hypo-sulphite of sodium or plain photographic "hypo." When used as a lotion to soak bandages or compresses, it relieves the itching. Generally speaking, the first step anyone should take is to consult your druggist for minor cases and in cases where the eyes or a large area of the body has become involved, see your doctor.

From Mr. D. P. McG., Cnocmoran, Montreat, N. C., "Were there ever any buffaloes (Bison) in eastern North Carolina...?"

There are two sources of information describing the presence of buffaloes in Virginia and North Carolina. The first is from "Wild Mammals of Virginia," by Handley and Patton, page 84, and is quoted as follows:

"Captain John Smith probably did not go far enough inland to encounter bison, but many of the other early explorers made mention of them." In June 1613, Sir Samuel Argoll wrote of a trip up the

potomac said: "And then marching into the Countrie, I found great store of Cattle as big as Kine, of which the Indians that were my guides killed a couple, which we found to be very good and wholesome meate, and are very easie to be killed, in regard they are heavy, slow, and not so wild as other beasts of the wilderness." (Purchas: His Pilgrimes, Vol. 4, p. 1765, 1625.) William Byrd found them uncommon along the North Carolina-Virginia boundary line which he surveyed, but mentions the killing of a two-year-old near the present site of Danville, on November 11, 1733 (Boyd 1929). Goode (1896) mentions that buffalo still abounded in the vicinity of Charlottesville at the time of Thomas Jefferson's birth, and that a calf captured in the Blue Ridge nearby was presented as a gift to the Governor of the State in 1733. He further stated that "a trail frequented by the buffalo herds crossed the Blue Ridge at Rockfish Gap, twenty-four miles west of Charlottesville, passed the Shenandoah at a ford near Staunton, and afterward over the next range by a passage still known as 'Buffalo Gap.' into the beautiful valleys, then as at present, called the 'Cow Pasture' and the 'Calf Pasture' . . ."

The second is from the series "The Mammals of North Carolina," Installment No. 16, published by C. S. Brimley, which reads as follows:

"This species occurred in North Carolina in colonial days, and here is what John Lawson said about it in his History of North Carolina, published in London in 1714, reprinted by Garrett and Massie, Richmond, Va., in 1937, p. 119.

"'The buffalo is a wild beast of America, which has a hunch on his back as the Cattle of St. Laurence are said to have. He seldom appears among the English inhabitants, his chief haunt being in the land of Messiasippi, which is for the most part a plain country; yet I have known some to be killed in the hilly part of Cap-Fair-River, they passing the ledges of vast mountains from the said Messiasippi before they can come near us. I have eaten of their meat but do not think it as good as our beef.' Lawson was in North Carolina, 1700-1708, and again in 1710, 1711, and was killed by Indians in September of the latter year.

"'William Byrd in his Histories of the Dividing Line betwixt Virginia and North Carolina (North Carolina Historical Commission, 1929), also says, under date of November 11, 1728, "We took up our quarters upon Sugar-tree Creek in the same camp we had laid in when we came up, and happened to be entertained at supper with a rarity we never had the fortune to meet before, during the whole expedition. A little wide of this creek, one of the men had the good fortune to meet with a young Buffalo of two years old. It was a bull, which notwithstanding he was no older, was as big as an ordinary ox. His legs are very thick and very short and his hoofs exceeding broad. His back rose into a kind of bunch behind the shoulders, which I believe contributes not a little to that creature's enormous strength. His body is vastly deep from the shoulders to the brisket, sometimes six feet in those that are fully grown. The portly figure of this animal is disgraced by a shabby little tail, not over 12 inches long. This he cocks up whenever he is in a passion, and instead of lowing or bellowing, grunts with no better grace than a hog. The hair growing on his head and neck is long and shaggy . . . Its horns are short and strong . . . Its color is a dirty brown, and its hide so thick it is scarcely penetrable . . . As thick as this poor beast's hide was, a bullet made swift to enter and fetch him down. It was found all alone, tho buffalos seldom are."'

"According to H. C. Oberholser (1905) this species was exterminated in North Carolina about 1760, 42 years after Byrd's specimen was killed. The locality of that specimen is along or close to the Virginia-North Carolina line not far from the extreme northwest corner of what is now Person County, North Carolina."

Correction

In the June issue of *Wildlife in North Carolina* I made the statement "To the best of our knowledge, there are no organized coon hunting clubs although there are several groups addicted to this sport almost to the exclusion of all others." Bob Sillmon, Box 124, Ramseur, North Carolina, very promptly informed me of the Randolph Coon Hunters Association of which he is secretary, and also mentions that there is a Tarheel Coon Club of High Point. Are there others? Don't forget the Wildlife Resources Commission coon transplanting program. Write to us for details.—W.D.

REMEMBER!

The State Meeting of the N. C. Wildlife Federation October 30 and 31, and the annual meeting of the Southeastern Association of Fish and Game Commissioners on October 31, November 1 and 2, at the Carolinian Hotel, Nags Head. Two fine meetings and plenty of fun on the side!

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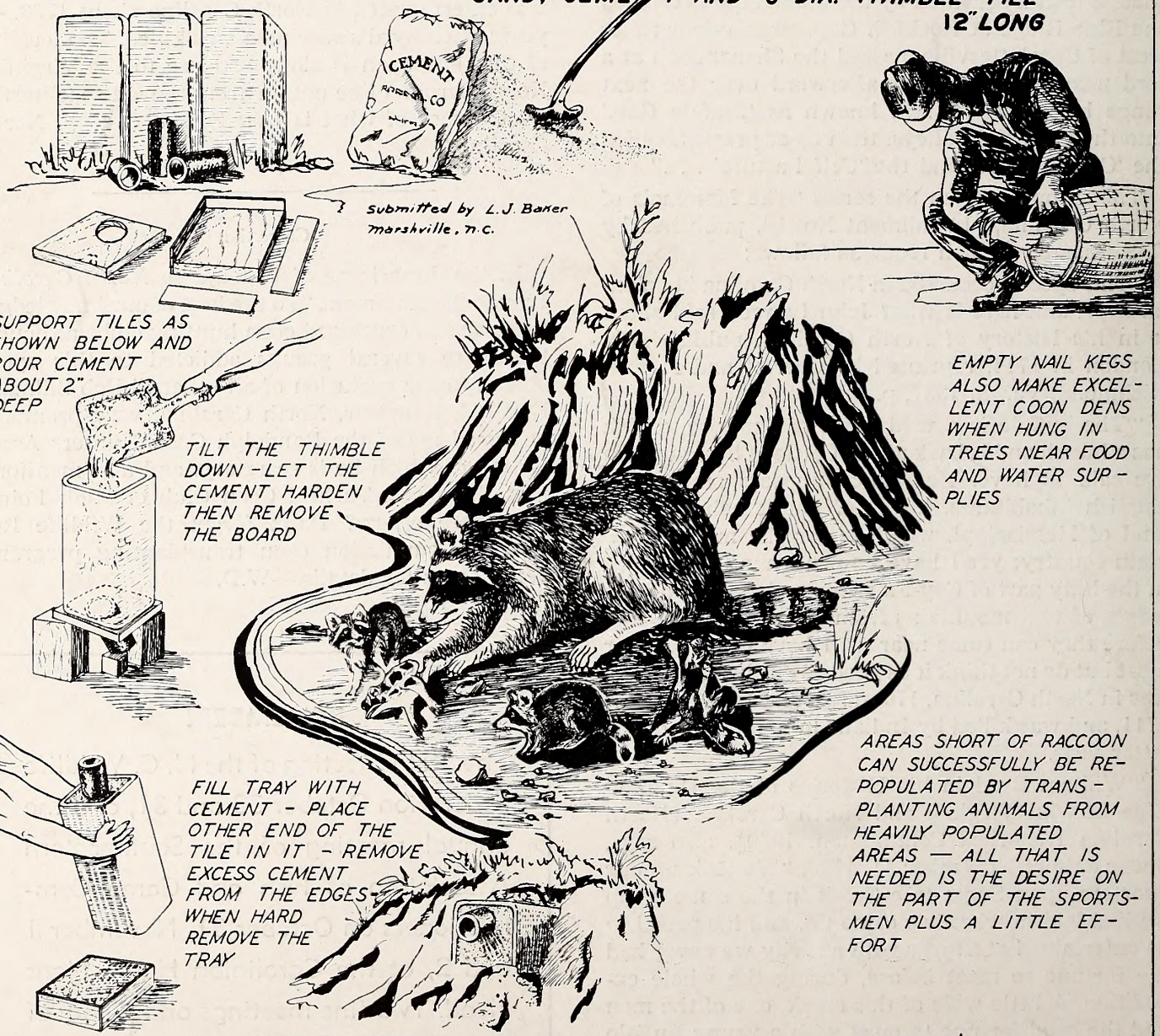
MORE HOMES *Mean* MORE WILDLIFE

MATERIALS NEEDED SQUARE HOLLOW TILE 12"X12"X24". 2 PIECES OF BOARD 14"X14"X1", ONE WITH A 6½" HOLE NEAR THE TOP, THE OTHER WITH STRIPS NAILED TO THE SIDES TO MAKE A TRAY 14"X 14"X 2" DEEP INSIDE, SAND, CEMENT AND 6" DIA. THIMBLE TILE 12" LONG



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